

(c) Scheduled emission-related maintenance in addition to that performed under § 86.087-25(b) may only be recommended to offset the effects of abnormal in-use operating conditions, except as provided in paragraph (d) of this section. The manufacturer shall be required to demonstrate, subject to the approval of the Administrator, that such maintenance is reasonable and technologically necessary to assure the proper functioning of the emission control system. Such additional recommended maintenance shall be clearly differentiated, in a form approved by the Administrator, from that approved under § 86.087-25(b).

(d) Inspections of emission-related parts or systems with instructions to replace, repair, clean, or adjust the parts or systems if necessary, are not considered to be items of scheduled maintenance which insure the proper functioning of the emission control system. Such inspections, and any recommended maintenance beyond that approved by the Administrator as reasonable and necessary under paragraphs (a), (b), and (c) of this section, may be included in the written instructions furnished to vehicle owners under paragraph (a) of this section: *Provided*, That such instructions clearly state, in a form approved by the Administrator, that the owner need not perform such inspections or recommended maintenance in order to maintain the emission warranty or manufacturer recall liability.

(e) If the vehicle has been granted an alternative useful life period under the provisions of § 86.087-21(f), the manufacturer may choose to include in such instructions an explanation of the distinction between the alternative useful life specified on the label, and the

emissions defect and emissions performance warranty period. The explanation must clearly state that the useful life period specified on the label represents the average period of use up to retirement or rebuild for the engine family represented by the engine used in the vehicle. An explanation of how the actual useful lives of engines used in various applications are expected to differ from the average useful life may be included. The explanation(s) shall be in clear, non-technical language that is understandable to the ultimate purchaser.

(f) If approved by the Administrator, the instructions provided to purchasers under paragraph (a) of this section shall indicate what adjustments or modifications, if any, are necessary to allow the vehicle to meet applicable emission standards at elevations above 4,000 feet, or at elevations of 4,000 feet or less.

(Secs. 202, 203, 206, 207, 208, 301a, Clean Air Act, as amended; 42 U.S.C. 7521, 7522, 7525, 7541, 7542, 7601a)

[50 FR 10693, Mar. 15, 1985, as amended at 51 FR 24610, July 7, 1986]

§ 86.088-2 Definitions.

The definitions in § 86.085-2 remain effective. The definitions in this section apply beginning with the 1988 model year.

Composite NO_x standard, for a manufacturer which elects to average light-duty trucks subject to the NO_x standard of § 86.088-9(a)(iii)(A) together with those subject to the NO_x standard of § 86.088-9(a)(iii)(B) in the light-duty truck NO_x averaging program, means that standard calculated according to the following equation and rounded to the nearest one-tenth gram per mile:

$$\frac{[(\text{PROD}_A)(\text{STD}_A) + (\text{PROD}_B)(\text{STD}_B)]}{[(\text{PROD}_A) + (\text{PROD}_B)]} = \text{Manufacturer's Composite NO}_x \text{ Standard,}$$

Where:

PROD_A = The manufacturer's total light-duty truck production for those engine families subject to the standard of § 86.088-

9(a)(iii)(A) and included in the average for a given model year,

STD_A = The NO_x standard of § 86.088-9(a)(iii)(A),

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PROD_B = The manufacturer's total light-duty truck production for those engine families subject to the standard of § 86.088-9(a)(iii)(B) and included in the average for a given model year, and

STD_B = The NO_x standard of § 86.088-9(a)(iii)(B).

Critical emission-related components are those components which are designed primarily for emission control, or whose failure may result in a significant increase in emissions accompanied by no significant impairment (or perhaps even an improvement) in performance, driveability, and/or fuel economy as determined by the Administrator.

Critical emission-related maintenance means that maintenance to be performed on critical emission-related components.

Emission-related maintenance means that maintenance which does substantially affect emissions or which is likely to affect the emissions deterioration of the vehicle or engine during normal in-use operation, even if the maintenance is performed at some time other than that which is recommended.

Family NO_x emission limit means the NO_x emission level to which an engine family is certified in the light-duty truck NO_x averaging program, expressed to one-tenth of a gram per mile accuracy.

Non-emission-related maintenance means that maintenance which does not substantially affect emissions and which does not have a lasting effect on the emissions deterioration of the vehicle or engine during normal in-use operation once the maintenance is performed.

Production-weighted NO_x average means the manufacturer's production-weighted average NO_x emission level, for certification purposes, of all of its light-duty truck engine families included in the NO_x averaging program. It is calculated at the end of the model year by multiplying each family NO_x emission limit by its respective production, summing those terms, and dividing the sum by the total production of the effected families. Those vehicles produced for sale in California or at high altitude shall each be averaged separately from those produced for sale in any other area.

Production-weighted particulate average means the manufacturer's production-weighted average particulate emission level, for certification purposes, of all of its diesel engine families included in the particulate averaging program. It is calculated at the end of the model year by multiplying each family particulate emission limit by its respective production, summing those terms, and dividing the sum by the total production of the effected families. Those vehicles produced for sale in California or at high altitude shall each be averaged separately from those produced for sale in any other area.

(Secs. 202, 203, 206, 207, 208, 301a, Clean Air Act, as amended; 42 U.S.C. 7521, 7522, 7525, 7541, 7542, 7601a)

[50 FR 10648, Mar. 15, 1985]

§ 86.088-10 Emission standards for 1988 and 1989 model year gasoline-fueled heavy-duty engines and vehicles.

(a)(1) Exhaust emissions from new 1988 and later model year gasoline-fueled heavy-duty engines shall not exceed:

(i) For engines intended for use in all vehicles except as provided in paragraph (a)(3) of this paragraph,

(A) *Hydrocarbons*. 1.1 grams per brake horsepower-hour, as measured under transient operating conditions.

(B) *Carbon monoxide*. (1) 14.4 grams per brake horsepower-hour, as measured under transient operating conditions.

(2) *Gasoline-fueled heavy-duty engines utilizing aftertreatment technology*. 0.50 percent of exhaust gas flow at curb idle.

(C) *Oxides of nitrogen*. 10.6 grams per brake horsepower-hour, as measured under transient operating conditions.

(ii) For engines intended for use only in vehicles with a Gross Vehicle Weight Rating of greater than 14,000 pounds,

(A) *Hydrocarbons*. 1.9 grams per brake horsepower-hour, as measured under transient operating conditions.

(B) *Carbon monoxide*. (1) 37.1 grams per brake horsepower-hour as measured under transient operating conditions.

(2) *Gasoline-fueled heavy-duty engines utilizing aftertreatment technology*. 0.50